ARROWHEAD

COMBAT DEVELOPMENTS COMMAND

September 1971

Commander's Call

We at Combat Developments Command have re-geared to face the challenges of the immediate future with some changes that should greatly improve our efficiency. These organizational changes, carefully worked out over many months, will provide the required new approach with the least possible turbulence in work positions within the command.

Obviously, the realignment affects everyone in CDC; therefore, this issue of our *Arrowhead* will carry a full and detailed explanation of the changes—emphasizing not only *what* is happening, but also *why* such a reorganization is vitally necessary. The ensuing pages should give the interested reader a satisfying review of the specific reasoning which led to the changes and a concise summary of the moves that take us into the new organiation. I wish, however, to give you my view of the overall thrust that characterizes the turn from the "old CDC" to the new.

The main goal is to bring *responsibilities* and *resources* closer together: the man who is tasked with a mission must have full control of the assets necessary to complete that mission. You will note that the narrowing of ten groups and institutes to six is in line with this plan, uniting responsibilities and resources. The simplest example is the placement of agencies under the control of the subordinate headquarters that needs and uses the input of those specific agencies.

Part of this goal is the aim of *increased responsiveness* to short and long-range requirements. Much control has been moved down from the central headquarters to the "middle management" level, so that missions and tasks will not be diffused by staff layers. Each major area of Army interest now has a "mission commander"—and the emphasis has shifted from our CDC headquarters to this man, whom I refer to as the "lead horse."

The thrust, then, is toward a heightened responsiveness through functionalizing our staff management. There are a number of other considerations, to be sure, and I encourage you to read this issue's reorganization article in its entirety. As I noted before in these pages, with the decreasing numerical strength of the Army (while the external threat continues to grow), the

role of the Combat Developments Command will be more critical than ever to the Army. We cannot forget for a moment that *the soldier of the future is depending on us.* I am convinced that our new CDC organization, with its mission-oriented, systems approach, is better prepared to help the soldier of the future.

JOHN NORTON
Lieutenant General,
U.S. Army
Commanding

ARROWHEAD

COMBAT DEVELOPMENTS COMMAND

September 1971 No. 31

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Management Concept Drives Command Realignment Plan

by LtCol. Faris Farwell

For Combat Developments Command (CDC) as it moves into the demanding decade ahead, the date July 19 may well be remembered as being as significant a date as June 20, the official birthday of CDC.

It was on July 19, 1971, that the Vice Chief of Staff of the Army, General Bruce Palmer, gave CDC the green light to put into motion a dramatic and far-reaching command reorganization plan.

True, CDC has had reorganizations before, some of them considered major. But never before has there been a command realignment with an accompanying management rationale. The persuasive logic of the management concept compels the resultant reorganization.

The first question, then, that needs to be answered is, Why the need for a change?

The past two years have brought a new and more sophisticated approach to Army research and development and combat developments. Technology has overtaken the Army. Capabilities available to the Army now are virtually limitless. But concurrent with the explosion of new, feasible capabilities, a direct inversion of resources available to the Army is also taking place.

The era of unconstrained development, such as was embodied in the Army-75 concept program, is over.

CDC's mission has remained basically unchanged, although the wording of the mission statement has undergone substantial revision over the years. Nevertheless, CDC still must provide Department of the Army with detailed answers to the questions—HOW CAN THE ARMY BEST FIGHT? . . . BEST BE EQUIPPED? . . . BEST BE ORGANIZED?

Moreover, it must provide those answers in terms of recommendations for what, more frequently than not, are extremely expensive systems. Even when candidate systems are well within the state of technology, the costs involved restrict selection to those which have the greatest potential for improving the combat power of the Army. Balances and trade-offs must be made.

The effective employment of the CDC tools —STUDIES, ANALYSIS, MODELING, WAR GAMING, EXPERIMENTATION, TROOP

TESTS—to the design, measurement, and evaluation of the relative merits of new and competing systems of increasing complexity requires the highest level of professionalism and technical competence.

There is an increasing demand for both empirical and analytical evaluation of proposed systems throughout the development cycle. Although not all of these evaluations are performed solely by CDC, and some involve several other major commands, the need for greater sophistication and increased responsiveness to today's demands is basic to our new management approach.

In short, the current corporate structure of CDC has been outmoded by the needs and demands of tomorrow's Army.

CDC has resorted to an ever increasing dependence on "ad hoc" groups to solve the tasks at hand, given the inability of yesterday's organization to accomplish today's job. The "ad hoc" solution has many drawbacks: it is expensive in TDY and morale costs, and it severely distorts the chain of command.

In addition, piecemeal organizational adjustments, undertaken in response to external pressures for greater emphasis or to give visibility in high priority areas, have created some specialized stovepipes and contributed to the blurring of mission responsibilities.

The pressures, external and internal, which influenced and defined the areas of improvement within CDC are illustrated by the two examples in the accompanying boxes.

With these problems as a background, the management objectives were defined. The Commanding General, at the outset of organizational planning, established certain objectives (see box on page 9).

The overall objective of reorganization was to provide within the resources currently available to the command an organization capable of dynamic and flexible responses to its two primary customers—the Army in the field and Headquarters, Department of the Army.

With these objectives in mind, the planning staff next looked at a number of organizational solutions. The alternatives given serious consideration were:

*Status Quo
*Strong Intermediate Commands
*No Intermediate Commands
*Combat Development and School Command
*Study Center
*Single Center

The first alternative would continue the current organization—in effect, retain 17 agencies, 7 institutes, 3 groups, and CDCEC for a total of 28 subordinate commands.

The second alternative considers a realigning or reduction of the institutes and a strengthening of the intermediate commands while leaving the agencies untouched. Under this plan, the headquarters would be reduced, with the assets applied to the strengthening of the groups, and the group headquarters would be given a productive mission and capability as well as control of the agencies.

The third choice would eliminate the intermediate commands and place all of the CDC subordinate elements directly under the headquarters. Although this alternative would have been considered unthinkable a few years ago, automation and improved management procedures could accommodate this span of control. The assets of the middle echelon would then be converted to production capabilities at the operating level.

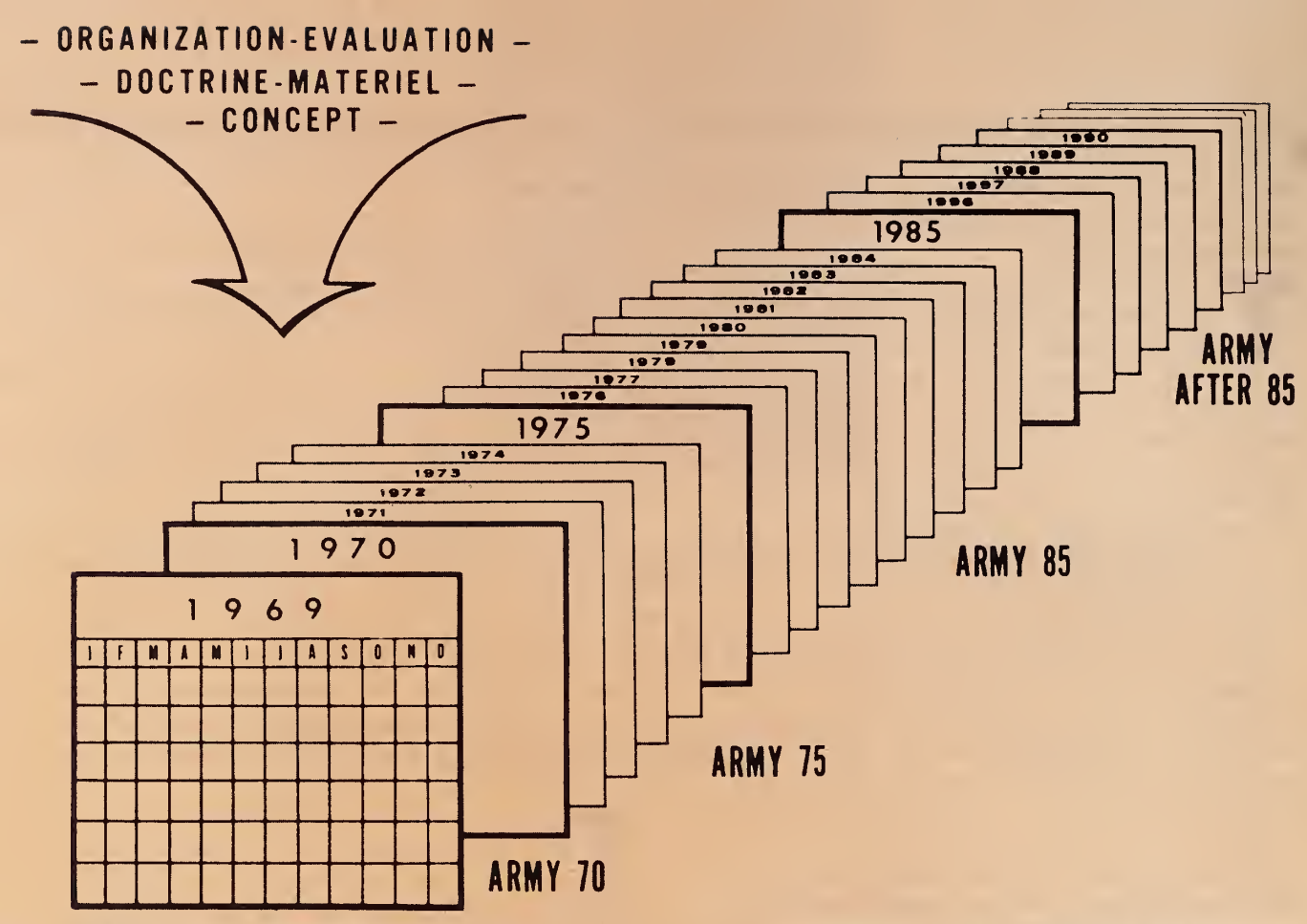
The fourth alternative related to the Parker Committee, whose recommendations were examined in some detail by Department of the Army and the major commands last fall.

The fifth course of action dealt with study centers which consolidated the production elements of the command in order to reduce the overhead associated with a large number of widely-scattered subordinate elements and to centralize work on like-type functional projects.

The final alternative considered was to consolidate all of CDC's production elements in one location in order to minimize overhead and maximize the resources available to meet mission requirements.

In comparing the various alternative concepts for reorganization, the planners found

Lieutenant Colonel Faris T. Farwell currently is assigned to the Office of the Comptroller, Headquarters CDC, Ft. Belvoir, Va., with a primary duty of reorganization planning.


– ORGANIZATION-EVALUATION –
– DOCTRINE-MATERIEL –
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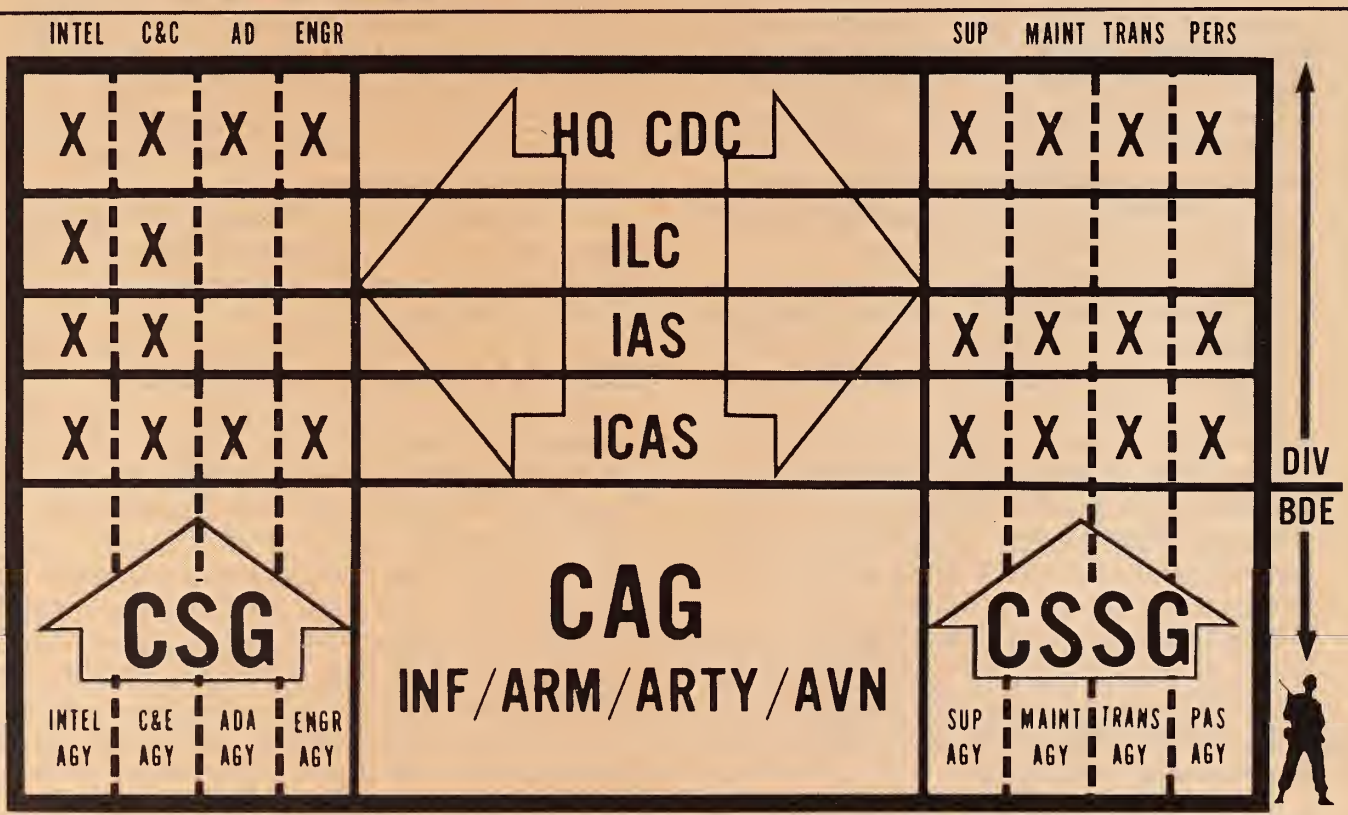
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C&E AGY
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SUP AGY
MAINT AGY
TRANS AGY
PAS AGY

In terms of external pressure, CDC was designed (top) to respond to a particular management philosophy, a way of doing business in which the command resources were channelled to produce a neatly defined series of five-year Army concept programs—Army-70, Army-75, and so on.

Within the confines of the sequential five phases of combat developments—then defined as Concepts, Doctrine, Materiel, Organization, and Evaluation—and the further boundaries of the classic battlefield packages of combat, combat support, and combat service support, CDC was charged to produce the unconstrained theoretical Army to meet the total threat for the period being addressed.

In the atmosphere of the day—the mid to late 1960s—this methodology responded reasonably well to the needs of the Army. However, with the advent of the current stringent constraints on the number of people and dollars available to the Army, the five-year incremental approach and the stovepiping of doctrinal, materiel, and organizational actions has proved unacceptable.

This is the way the old organization assigned developmental responsibilities (bottom). Most significant of the lines on this chart are those which show a breakoff of responsibility at the brigade-division line of demarcation and the multiple institutes responsible for long-range concepts and the various echelons above division level.

Under the previous organization, the Combat Arms Group had design responsibility for the combat elements of Infantry, Armor, Field Artillery, and Aviation—but only up to the level of brigade-sized units. The Division, Corps, and Field Army echelons were the responsibility of the Institute of Combined Arms and Support, and the Institute of Advanced Studies was responsible for the echelon above Field Army.

Within the other two groups—Combat Support and Combat Service Support—the brigade-division line carried less significance as the service and support elements were deployed across the entire spectrum of activities because at successive echelons different elements picked up developmental responsibility. The pockets of responsibility thus created were not clear and left room for possible slippage. Moreover, in day-to-day activities, the Commanding General had no single commander to whom he could turn for matters related to a specific function.

"The option selected called for strong intermediate commands and a reduced headquarters"

that while the possibilities were not limited, the resources, including start costs, definitely were. What CDC sought was a practical solution providing a maximum return with a minimum of upheaval to on-going activities and a solution capable of early and rapid implementation to assure an early return.

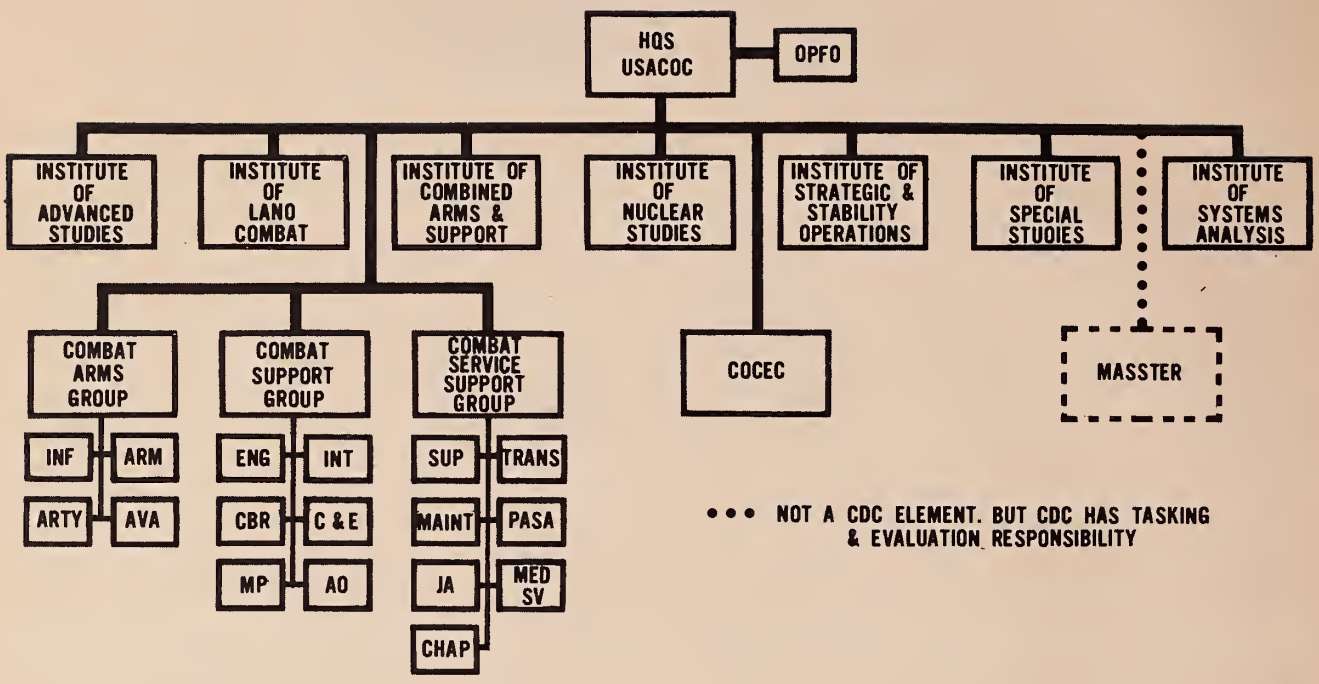
After careful evaluation, the option selected as the preferred alternative was that calling for strong intermediate commands providing responsive and visible leadership in the developmental process, a reduced CDC headquarters to provide guidance and direction, and the elimination of realignment of the institutes. (Detailed organization charts are on pages 6 & 7.)

Under the new management concept, each element of the restructured command will be responsible for examination of the future environment, thrust, technology, and exploration of innovative operation concepts within its area of proponency.

The longer range and higher echeloned projects previously done by the Institute of Land Combat, Institute of Advanced Studies, and Institute of Combined Arms and Support have been consolidated in Concepts and Force Design Group.

While the agencies are assigned to specific groups, they will, within their particular field of expertise, continue to respond to all groups as required.

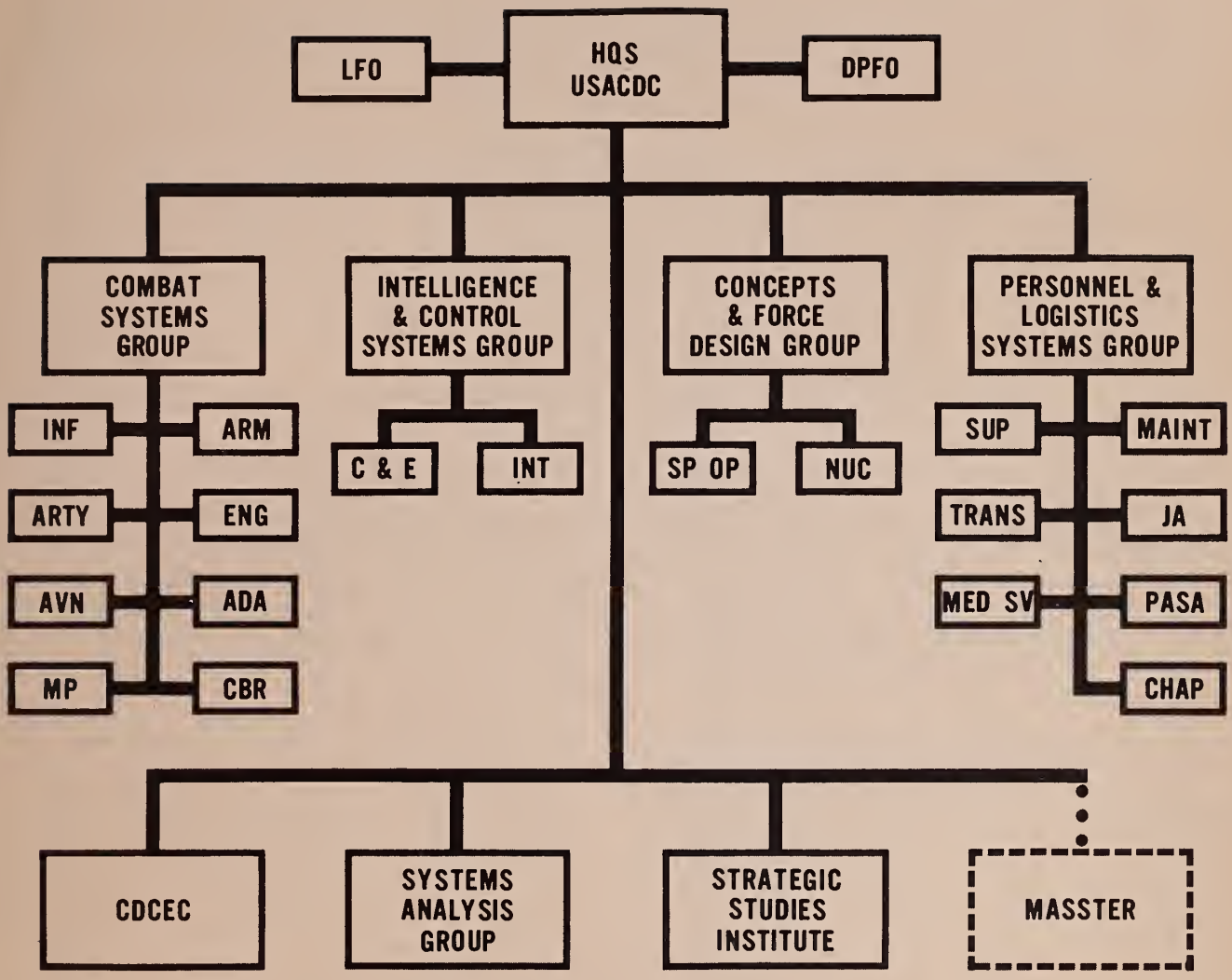
Experimentation support for development of doctrine, organization, and materiel needs will be provided by the Experimental Command and, in terms of test direction, by Project MASSTER. Analytic support for all elements of CDC will be provided by the new Systems Analysis Group.



The thrust of the organizational realignment envisaged under the preferred option may readily be perceived by comparing the old and new organizational structures. As shown above, the command structure as of January, 1971, consisted of seven institutes, three groups, 17 agencies, and one experimentation command. Project MASSTER is shown because of the CDC responsibility for tasking and test evaluation. The chart on the right shows the organization as it will be by July, 1972.

Under the reorganization, all but one of the institutes are eliminated or converted to group production or support elements. The Institute of Advanced Studies at Carlisle Barracks, Pa., has been converted to the Strategic Studies Institute, and some of the assets transferred to Alexandria, Va., where the Institute of Land Combat has been redesignated as Concepts and Force Design Group (CONFOR) and assigned an expanded role in force design and the preparation of combat developments products. This move eliminates existing areas of overlap in responsibility for the Army in the field echelons above division level and for the production of long range studies.

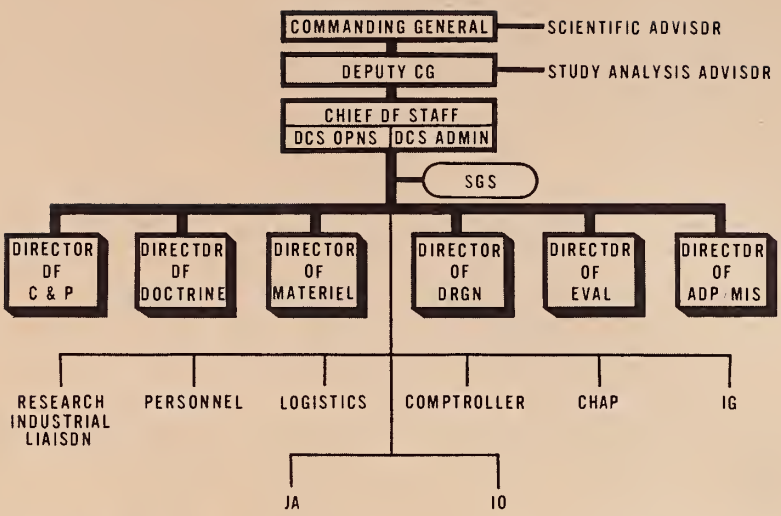
The Institute of Combined Arms and Support will be deactivated and its activities phased into



the production groups. The Institute of Nuclear Studies becomes an agency under CONFOR, along with the Institute of Strategic and Stability Operations, which will be known as the Special Operations Agency. The Institute of Special Studies will be deactivated with its activities absorbed by the production groups, and the Institute of Systems Analysis becomes the Systems Analysis Group.

Satellited at headquarters are two small organizations—the Data Processing Field Unit, which is carried over from the old structure, and the Liaison Field Office, a new addition.

The role proposed for the three former middle management groups represents a major change. Under the present management concept, these groups have been redesignated to more accurately define their areas of responsibility; the agencies they control have been realigned and their missions expanded to provide both control and production at group level. The four new production groups pull the bulk of the combat developments load. While responsibility may shift during various phases of the development cycle, one of these group commanders always is the "lead horse" guiding CDC's productive efforts for a given project.



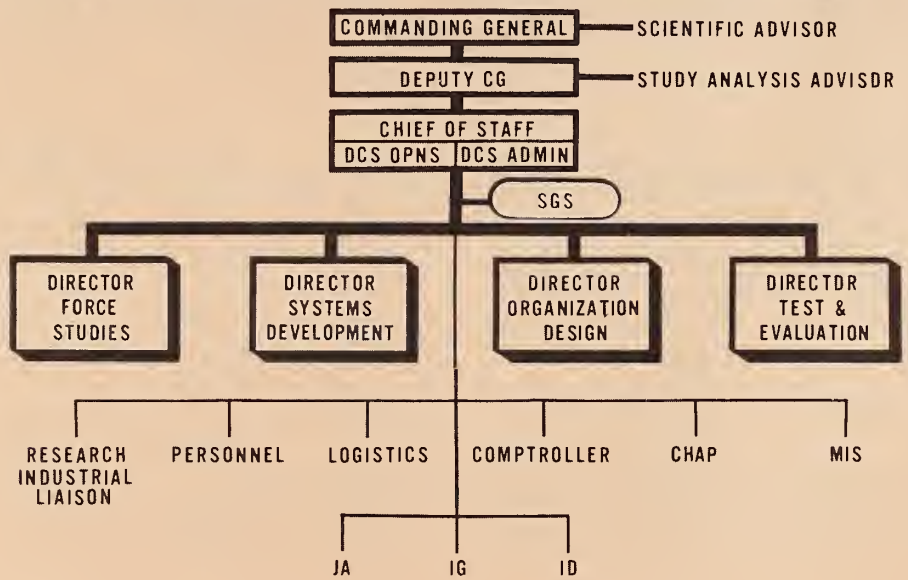
The changes in the CDC headquarters structure are no less dramatic than the field organization realignment.

On the top is the current staff composition, with the product-oriented stovepipes in doctrine, materiel, and organization fairly obvious. On the bottom is the proposed staff structure that is to be obtained by the end of the current fiscal year.

The relationship between the new directorates and the field organization is depicted on the preceding page. The Concepts and Plans Directorate becomes the Force Design Studies Directorate. Doctrine and Materiel phase into the Materiel Systems Development Directorate. Organization remains pretty much the same, but even greater visibility is being placed on the test and evaluation function.

The supporting staff remains almost identical to that of the old organization, except the Management Information Systems, which had been in the Directorate of ADP/MIS, becomes a supporting element by reason of transfer of its ARTADS capability to the Intelligence and Control Systems Group.

The key to the headquarters staff organization is a strong Deputy Chief of Staff/Operations, who acts as the quarterback in the guidance and control of combat developments projects and products. The management concept involves the use of Command Priority Objectives, Command Guidance Memorandum, and Significant Action Lists (see June 1971 *Arrowhead*, page 12).



Earlier in the article, the work echelonment problem arising from the old organization structure was examined (see bottom chart on page 4). The box below portrays the simplified relationship which exists under the new organization. As can be seen, the COMSCONFOR interfare has been raised from that applicable to CAG–IGAS under the old system. The multiple elements previously dividing up responsibility for the echelons above division level have been eliminated and the interface with the other two groups reduced to a manageable level.

One point probably should be made at this juncture: The realignment plan has been thoughtfully and carefully programmed to be phased through several months, particularly in those areas where the personnel impact is the greatest. The command has set July 1, 1972, as the date when all reorganization actions should be completed.

The major step in the CDC reorganization plan involves the inactivation of the Institute of Combined Arms and Support (ICAS) at Ft. Leavenworth, Kan., and the reallocation of its missions, functions, and personnel. Spaces will be distributed commensurate with the functions transferred and the workload involved. Since a majority of the ICAS functions, at least in terms of personnel employed, are being transferred to COMS Group, which remains at Ft. Leavenworth, the impact on personnel turbulence and morale is reduced considerably.

Control of several on-going projects will be transferred to CONFOR and INCS Groups, but work will be completed through its current phase by the present ICAS team. During the remainder of this fiscal year, these elements of CONFOR and INCS Groups at Ft. Leavenworth will be phased down by attrition with replacements routed to the gaining element.

Another essential element in the planning for command reorganization is the impact of the action on other major commands and activities involved in the developmental process.

The CDC plan was very careful to maintain the traditional close ties with the CONARC school system. Except for the two institutes being converted to agencies, the reorganization involves no change in the total number or location of agencies. Hence, the strong center team ties which now exist at branch schools will be preserved and exploited.

Moreover, the establishment of a group dedicated to the intelligence, command, and control functions improves the CDC interface with Project MASSTER and the Combat Surveillance Center.

The Ft. Leavenworth Center Team will, of course, be changed by the breakout of ICAS responsibilities from the Command and General Staff College and the build-up of the Combat Systems Group.

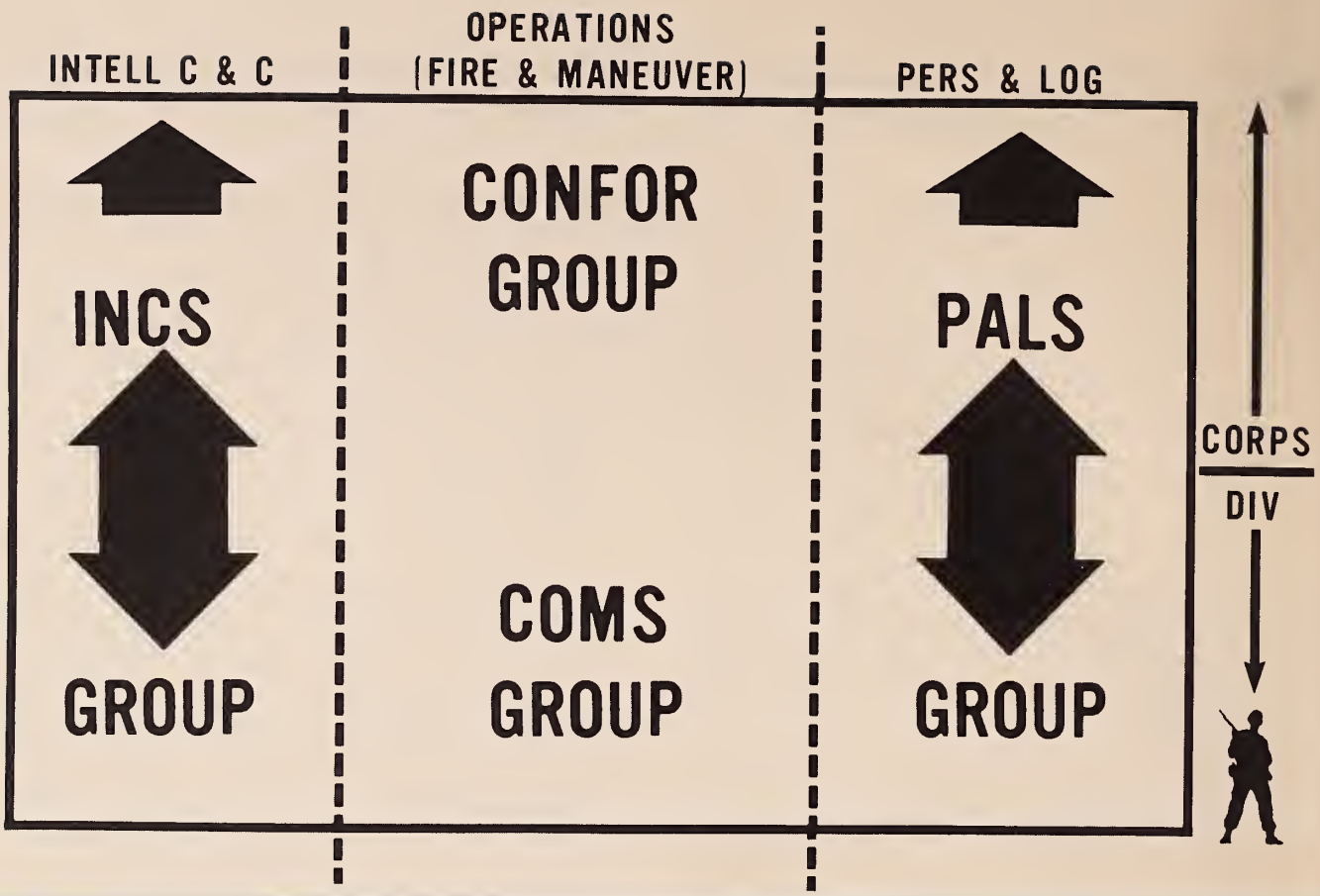
Reorganization planners looked into this situation carefully and it was the view of CDC that the command relationships involved should be strengthened through a clear delineation of responsibilities and functions. Thus, the views of CDC and the school, if not compatible, will be aired in the Center Team arena—the procedure traditionally followed at other centers. The college commandant thereby will be assured a continuing vital role in the combat developments process.

In other areas of interface with major commands, the delegation of increased responsibilities to the intermediate commanders and the shift in emphasis to management by systems should improve and ease CDC relationships with the Army Materiel Command and its project managers.

At headquarters staff level, external agencies are assured a better interface through the new Deputy Chief of Staff/Operations, who will be

Management/Organization Objectives

1. INCREASE PRODUCTIVITY AND RESPONSIVENESS TO FIELD COMMANDS AND HQ DA.
2. CLOSE GAPS IN CAPABILITIES; i.e., INTELLIGENCE, CONTROL, AND OTHER AREAS.
3. SOLVE MATERIEL PROLIFERATION PROBLEM.
4. INCREASE ROLE OF MIDDLE (GROUP) MANAGEMENT.
5. CENTRALIZE CONTROL WITHIN HEADQUARTERS CDC (DCS/OPS)
6. INTEGRATE DOCTRINE, MATERIEL, ORGANIZATION.
7. INTEGRATE BRANCH CONSIDERATIONS.
8. INCREASE CAPABILITIES IN MATERIEL DEVELOPMENTS, PARTICULARLY TEST AND EVALUATION.
9. REDUCE SIZE OF HEADQUARTERS.
10. BETTER GEOGRAPHIC BALANCE.



The design and mission of a force and the relationships among the "units of the force" are the responsibility of Concepts and Force Design (CONFOR) Group. The operational doctrine, organization, and materiel systems of these units are the responsibilities of Combat Systems (COMS) Group, Intelligence and Control Systems (INCS) Group, and the Personnel and Logistics Systems (PALS) Group respectively.

These relationships dictate that a lead role will be taken by CONFOR Group in preparing the operational/force design concepts to be used as guidelines within which the other three groups will develop the doctrine, organization, and materiel needs for the component units of the Army in the field, other than division.

The COMS Group will integrate the products of the other groups into division level organizational and operational concepts. The CONFOR Group will have the same responsibilities at levels above the divisions.

the point of contact and clearing house on all combat development matters.

In summary, the need for the reorganization of CDC was compelling. The concept adopted met the needs and provided an organization capable of dynamic and flexible responses to its two primary customers—the Army in the field and the Department of the Army.

The proposed management concept is expected to provide better combat development products per man and dollar invested. The CDC intermediate commanders will play a more effective role in their respective Center Teams and with other developmental activities.

Ever since he arrived in the command, the Commanding General has repeatedly stated that CDC is the best hope for the Army to get control of itself in an age of proliferating technology and diminishing resources.

The new CDC reorganization concept now under way clearly is the best way for this command to truly insert vigor in its slogan—"Vision to Victory."

RIOT CONTROL: THE LAST RESORT

CDC's MP Agency Tests Equipment It Hopes Will Never Be Needed

by SP5 Bill Witcraft

Riot!

The summer sun is hot. It beats down on the crowd, causing sweat to glisten on their bodies. Their emotions are as hot as the sun; they listen to their leader shouting, "Let's go. Let's burn, loot, and take what we want.

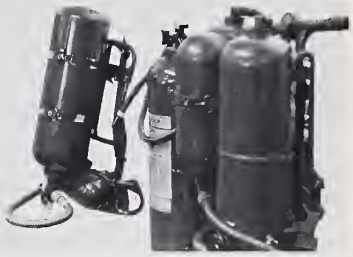
"Let's riot!"

The word brings about different emotions in people. To some it brings an emotion of fear in realizing what destruction and havoc a riot can create. Still, in others, it brings an emotion of excitement. To these people, the glare of lights, the noise, the sounds, sights, and smell of mass action have a hypnotic effect which is hard to resist.

A riot starts when a crowd or mob, led by skillful leaders (who usually remain in obscurity when the riot begins), believes that rioting will achieve compensation for their grievances. A skillful leader can raise emotional tension in a crowd to a fever state. He then suggests "justifiable" action to release the tension. Thus, by power of suggestion, a riot is started.

The majority of the crowd, then, is not subversive, but have been led into the streets and into acts of violence. Only three to five per cent of the crowd are usually hardcore "rioters;" the rest are merely curious or "taggers-on." Since most of the crowd are not hardcore "rioters," discretion must be used in methods to disperse them.

The Army is sometimes called upon to provide assistance to civil authorities during



The recent May Day demonstrations in Washington, D.C., are instances where the Army was called upon to provide assistance (left and below). The M3 backpack disperser (above, foreground) is compared to the XM33, which is lighter, cheaper, and just as effective.

"Chemical agents have been found to be the most effective means of dealing with civil disturbances"

civil disturbances. Because of this contingency, the Combat Developments Command (CDC) Military Police Agency, located at Ft. Gordon, Ga., has been assigned the task of preparing documents defining requirements for civil disturbance control equipment.

One of the problems faced in defining requirements for civil disturbance control equipment is the type of force used to disperse a crowd. It is desirable that equipment must be used that will not cause permanent harm or injury to anyone. Up until the first part of this year, the agency was working under the assumption that a non-lethal weapon could be produced. However, according to Lieutenant Colonel George R. Baldwin, Chief of the agency's Materiel Division, "If you write a material needs document and you say that the item or piece of equipment must be non-lethal, you are putting so many restraints on the developer that it is just not within his capability to develop the item.

The "smoke rope" is designed to establish, almost instantly, barriers of smoke clouds at any length desired (above: left, center, right). The "rope" can be seeded with CS, thus negating the need for several hand grenades. It appears that the "smoke rope" will have possible application in the domestic civil disturbance situation.

"For example, you can take an ordinary lead pencil, and, in the right place and in the right person's hands, it can kill you. So, it's lethal. Naturally, you don't ordinarily think of objects like this as being lethal, but it is possible. But if you change the term from 'non-lethal' to 'reduced lethality,' you are saying that we can accept

some range or some parameters which include some lethality. We are then recognizing that anything we can develop might have some lethal characteristics; however, we are going to keep them at a minimum.

"It is very difficult from a moral point of view to design or plan for equipment or weapons which will do permanent harm or permanent damage to a fellow citizen. It is different when you are dealing with an armed enemy and on opposite sides of the fence. We obviously don't want to kill people involved in a civil demonstration; we just want to be able to use the minimum amount of force required to control them."

Civil disturbances have presented the military and civilian law enforcement community with unique and sometimes tragic problems, but they are being matched with increasingly sophisticated civil disturbance control equipment.

With reduced lethality as their goal, the agency currently has several items of civil disturbance control equipment under experimentation for use in riot control. Chemical agents have been found to be the single most effective means of dealing with civil disturbances. Originally, agents CN and CNDM were used to disperse disorderly crowds. Agent CN is still used by some police departments, but the Army has adopted the newer and more effective agent CS for riot control use.

Scale-model mock cities, like the one shown below, are used to brief selected law enforcement officials of all services at the SEADOC briefings held at Ft. Gordon. The agency briefs the selected personnel on new items of equipment that are being tested for riot control.

"CNDM was an adamsite configuration," notes LtCol. Baldwin. "The adamsite is a very volatile agent. CNDM is not being used because it could do quite a bit of harm to a younger person and to an elderly person. The intent, again, is not to create havoc or cause terror among people, which was one of its psychological characteristics.

"CN is worthless as far as being a control agent. It does not affect anyone to any degree. CS gives better effects than CN, but it does not give you the effects of adamsite. CS will probably be around for a long time because of the variations to it. It can be used in liquid form or micropulverized powder. Its characteristics, when you get a whiff, let you know you have been gassed and you are going to get out of the area unless you are a real diehard. But, at the same time, you are not incapacitating anyone to the extent to where they won't be able to leave the area."

One standard item for use in riot control is the M7A3 "Beercan" grenade. The "beercan" grenade is a metal cannister shaped like a beer can and about the same size. It can be hand-thrown, statically-fired, or rifle-projected. It has a two-second fuse delay and a 20

"You would have to be another Brooks Robinson with an asbestos glove to be able to pick it up and throw it back"

to 60-second burning time. It burns CS pyrotechnic mixture.

Says Lieutenant John R. Brumgardt, a Materiel Needs Staff Officer: "One of the problems with this grenade, though, is the long burning time. The can stays intact for a long period of time with the agent coming out the top and bottom. Because of this, it can be picked up with asbestos gloves or a shovel and thrown back at the control forces."

To overcome this problem, another—the XM47 Hand Riot Grenade—is currently undergoing further development and improvement testing at Edgewood Arsenal, Md. This grenade releases CS through a small (approximately $\frac{3}{8}$") hole in the lower portion of the body. It has a rubber body, a two-second fuse delay and a burning time of approximately 25 seconds. The metal handle simply drops off when the fuse is activated, and the grenade body is then perfectly round.

The CS escaping through the hole in the bottom of the grenade body causes it to skitter in wild, irregular fashion when it is rolled along the ground. This skittering motion increases the area of coverage of the device and makes it difficult to throw back at the control

Law enforcement officials from Washington, D.C., and surrounding areas were on hand to view a mock demonstration at Ft. Belvoir's (Va.) Riot City. Soldiers, posing as "dissidents," met at City Hall (top) and advanced toward the soldiers (middle) and were dispersed (bottom).

forces. Lt. Brumgardt comments wryly, "You would have to be another Brooks Robinson with an asbestos glove to be able to pick it up and throw it back."

Another item being developed is the "Smoke Rope." It consists of a thin fuze, around which is wrapped material which, when ignited, produces a huge cloud of smoke. The "rope" burns at a high rate of speed, thus producing a smoke cloud its entire length almost immediately. The MP Agency sees use for it in establishing, almost instantly, barriers of smoke clouds of any desired length, thus negating the need for several hand grenades. The "rope" can also be seeded with CS to establish an immediate CS barricade.

Other items under experimentation in the civil disturbance control equipment field include the XM33 Portable Riot Control Agent Disperser System, which is intended to replace the M3 as the standard Army backpack disperser; and a Shock Baton, designed to ward off persons by means of minor, but effective, electrical shock produced by three C-size (1½ volt) batteries. It produces only static electricity, but it is of such strength that persons are easily warded off.

Some of the latest equipment being used in crowd dispersal is shown at left. LtCol. Baldwin demonstrates the smoke grenade and the shock baton to law enforcement officers (above).

The agency, however, is not confined entirely to civil disturbance control equipment documentation and experimentation. They are currently in the process of preparing a test and evaluation package for the XR–311 vehicle. These vehicles will arrive at the agency sometime later this year.

According to Lt. Brumgardt, "This is a militarized version of Steve McQueen's dune buggy. We are going to take them out in the field and use them in simulated combat conditions. This vehicle has shown much promise during initial testing and would substantially enhance the MP's mobility problem off hard surface roads."

The agency, as well as the 4th AIT Brigade (MP) and the Military Policy School, make up the Military Police Center team, whose mission is to identify, review, and evaluate problems and conflicts in all areas of interest concerning military policemen. The Center Team maintains a close liaison with the Office of the Provost Marshal General, the Continental Army Command, the Army Materiel Command, the USA Criminal Investigation Division Agency, and MP commanders worldwide to insure problem areas are attended with dispatch.

CDC's Military Police Agency is developing civil disturbance control equipment which they hope will never be used. But it is hoped that this equipment will act as a deterrent for future civil disturbances, since the best way to control violence is to prevent it.

Tactical Air Command

Blue Suit Support For Army Green

by LtCol. Edward Stillie

The Air Force resources most dedicated to ground combat support are our general purpose or tactical air forces. The Tactical Air Command or "TAC" is the organization that is responsible for organizing, equipping, and training these forces and for planning their employment on a rapid-reaction, world-wide basis.

With headquarters at Langley Air Force Base, Va., TAC is our most complex, yet versatile, major air command. It has a population of more than 90,000 people that operate from 19 TAC-owned CONUS bases with numerous other units located on ten or more additional bases as tenants. It employs more than 25 different types of aircraft, ranging from the swept-wing, supersonic F-111 fighter to the O-2 observation aircraft used by our forward air controllers.

The classic functions or tasks of tactical air are counterair, interdiction, close air support, reconnaissance, and airlift. The first of these are considered basic combat tasks and are both interrelated and interdependent. Various special and supporting functions also fall within the tactical air scope of responsibility.

COUNTERAIR OPERATIONS. This involves the destruction or neutralization of the enemy's air power both in the air and on the ground. To achieve success in any military campaign, air superiority must be gained and maintained. All available aircraft and missiles may be employed by the air commander in the initial battle for control of the air. Air superiority assures freedom of maneuver for both air and ground combat units and protects the flow of men and materials needed to reinforce the friendly engaged forces.

Counterair is perhaps our most "glamorous" type of operation. Flying the F-4 Phantom and the F-105 Thunderchief in the current conflict, these men are the MIG-killers —the potential "aces" of the Air Force. Our future air superiority fighter will be the F-15, a twin-jet aircraft capable of Mach 2.5 and optimized for the air-to-air combat mission.

INTERDICTION. The objective of interdiction is to deny the enemy military sustenance and to destroy or disrupt his supporting logistic structure. Normally, a successful interdiction campaign cannot be put into effect until an acceptable degree of air superiority has been attained. After the enemy's air capability has been reduced to the extent that it is no longer a threat to friendly air and surface forces, the striking power of tactical air forces, to include some air superiority resources, can be concentrated on the critical elements of his logistic system.

Interdiction targets include the major sources of enemy war materials such as factories, ports, depots, and storage facilities, as well as lines of communication and transportation resources. These targets are found in both the forward and rear areas; however, vulnerability is usually more pronounced to the rear of the immediate battle area. The F-105 has been our primary, deep-penetration interdiction aircraft in Southeast Asia. The F-4 and F-100 Supersabre have also been effective in this type role. Recently, we have added the A-7D "Corsair II" to our fighter/attack force. This aircraft, with its increased combat range and load-carrying capacity, has greatly enhanced our interdiction capability. For the deep strike and penetration role, the F-111 is equipped with advanced avionics systems that give it the capability to operate at night and during all-weather conditions.

CLOSE AIR SUPPORT. In close air support, the objective is to assist the friendly ground forces in the immediate battle area by aerial delivery of firepower against hostile targets, often within very close proximity to those forces. Close air support is generally conducted during phases of the theater campaign when friendly ground forces are exploiting the surface situation by offensive action. Surface exploitation usually is possible only when the enemy air threat has been neutralized by counterair and the enemy situation on the ground has been weakened by air interdiction. Additionally, close air support may be required to prevent excessive losses during periods when friendly ground units are engaged in a defensive action.

In Southeast Asia, we have used a variety of aircraft in this role. The propeller-driven A-1E has proven extremely effective because of its low operating speeds and has often been praised by ground combat units for its accuracy and dependability in delivering the required ordnance. The F-100 and the A-37 have all but

The C-130A (left) and the RF-4C Phantom II (above) are currently being used in Vietnam. The C-130 is often referred to as the backbone of today's tactical airlift fleet while the RF-4C is primarily used for reconnaissance.

replaced the A-1E, however, and the A-7D will further increase our ground fire support capability of the future. Rounding out our close air support fleet by the mid 1970s will be the A-X, an aircraft designed specifically for this type mission. The A-X will be a simple, low-cost weapons system that will be highly maneuverable, carry a large load of fuel and ordnance, and operate within the speed ranges necessary for extremely accurate ordnance delivery. It will be capable of operating from austere, semi-prepared airstrips near the battle area and will be optimized for maximum survivability against the threat postulated for future close air support environments.

TACTICAL AIR RECONNAISSANCE. Tactical air reconnaissance provides both air and ground commanders with immediate intelligence information on the location of the enemy and his actions, as well as assessing the effectiveness of our own air and ground efforts. Such missions are flown to obtain information on terrain, hydrography, force location and size, communications, installations, and many other elements of the enemy's order of battle. In modern warfare, where tactical problems are often compounded by a wide range of military situations, the timeliness, accuracy, and completeness of intelligence information may well determine the outcome of the battle.

Our primary reconnaissance aircraft today is the RF-4C. This aircraft is capable of day and night, all-weather operations. It is equipped with the most modern sensors, including infra-red for night operations in clear weather and side-looking radar for all-weather operations.

AIRLIFT. "Tactical Airlift" is the preferred term for airlift in support of combat operations and has replaced such terms as "assault airlift" and "troop carrier." These forces are trained and equipped to operate from small or unimproved airstrips and to deliver troops and supplies by both airland and airdrop methods. Cargo is often airdropped by various techniques, with or without parachute. Tactical airlift may be used for initial insertion of a combat force into the theater of operations; for aeromedical evacuation; and for a myriad of special airlift operations in both peacetime and wartime.

The backbone of today's tactical airlift fleet is the C-130 Hercules. Our "light" airlift inventory is rapidly being depleted by transfer and attrition of the C-7A and C-123 aircraft. No decision has been made for replacement of these aircraft but concerted efforts are being directed to a follow-on vehicle for the C-130. The MST, or Medium STOL Transport, will have increased short field takeoff and landing characteristics and is envisioned for the late 1970 time period.

TACTICAL ELECTRONIC WARFARE. The need to detect, locate, and jam enemy radar and communications nets has been highlighted by our activities in Southeast Asia. Although this concept is not new, advancing technology in this field indicates its expanding scope in any future conflict. The primary mission aircraft for electronic warfare operations over North Vietnam has been the EB-66, while the EC-47 has played an active role in operations in the south.

The F-4 (above) is used by the "Thunderbirds," the official USAF Demonstration Team, because of its excellent handling, while the F-105 (right) is a tactical fighter capable of attaining speeds in access of 1200 MPH.

"Counterair is perhaps our most glamorous type of operation"

SPECIAL OPERATIONS. This tactical air responsibility deals in the areas of counterinsurgency and unconventional and psychological warfare. To assist the underdeveloped nations of the world, we train and tailor mobile training teams to meet the special needs of these small countries by providing both technical and medical advisory services. One of the major tasks of our Special Operations Force has been the training of aircrews for special roles, both overt and covert, in Southeast Asia. Another responsibility is the training of forward air controllers (FAC).

COMMAND AND CONTROL. The system that coordinates and ties together all facets of tactical air operations and their relations with ground elements is the Tactical Air Control System (TACS). With its network of communications, radars, sensors, ALOs and FACs, this is the facility that allocates, directs, and controls the application of tactical air power. The system is closely tied to and represented at all Army echelons to insure that appropriate aerial firepower and support is provided the ground commander—when, where, and in the quantities needed. Centralized direction and control of all theater tactical air operations is vested in the Air Component Commander and is executed through the Tactical Air Control Center located at theater level.

In order to fully understand the Tactical Air Command's position in the overall defense structure, let's take a look at our highest level of military organization. Under the Joint Chiefs of Staff, we have the combatant commands which are either specified or unified. Our Strategic Air Command (SAC), with its global mission, is an example of a specified command. SAC has no geographical limitation to its responsibility and controls only air forces. Unified commands, such as the European and Pacific Commands, are responsible for specific geographic areas and employ forces from all services. Each Unified Commander has subordinate commanders for land, sea, and air. It is TAC's responsibility to organize, train, and equip tactical air forces in the specialized areas we have discussed to meet the needs of any Air Force Component Commander, anywhere in the world, at any time, and with a force tailored to fit any particular situation. Although tactical air forces may be deployed to support the needs of any Unified Commander, we find the greatest demands for them in the Pacific and European Theaters. Thus, we say the Pacific Air Force, United States Air Force Europe, and TAC are the three world-wide tactical air forces, with TAC serving as the focal point for developing new concepts, doctrine, and equipment, and for the training of aircrews and support personnel to meet the needs of the other two commands. In addition to his responsibility for supporting the Pacific and European Theaters, the Commander, TAC, is the Air Component Commander of Strike Command with its current commitments to the Middle East, Africa, and Southern Asia (MEAFSA Area). He is also the Air Component Commander for the Atlantic Command in planning military operations in the Atlantic and Caribbean areas.

The most vital task that has confronted TAC over the past several years is the training of crew members for operational units and as replacements for Southeast Asia. Aircrews in the past were trained at established Combat Crew Training

Lieutenant Colonel Edward O. Stillie is currently assigned to Headquarters CDC as the U.S. Air Force Tactical Air Command (TAC) Liaison Officer.

The A-7D (left) is the Air Force's newest subsonic interdiction and close air support aircraft. The O-2 (above) is an observation aircraft used by Forward Air Controllers for guiding air strikes.

Schools (CCTS) that, prior to 1965, turned out an average of only 766 crew members per year. The aircrew needs of Southeast Asia, compounded by the one-year tour policy, introduced a real problem. To accommodate these needs, TAC designated a number of its operational units as Replacement Training Units (RTU) and both CCTS and RTU are turning out the same product—a combat ready aircrew. The magnitude of this accelerated training program is indicated by the fact that aircrew production has increased from the pre-Southeast Asia yearly average of 766 to over 8,300 in 1971.

Another responsibility of the Tactical Air Command is the operational testing and evaluation (OT&E) of new weapons and equipment for world-wide employment by tactical air forces. These activities are performed primarily at three specialized centers: the Tactical Air Warfare Center, the Tactical Fighter Weapons Center, and the Special Operations Force. Let's look briefly at each of these organizations.

THE TACTICAL FIGHTER WEAPONS CENTER (TFWC). TFWC is located at Nellis Air Force Base, Nev. It assists TAC in introducing new or improved systems, subsystems, and equipment for fighter aircraft. It tests, evaluates, and validates new systems and "quick fix" items designed to enhance tactical air capabilities today. The TFWC also develops concepts, doctrine, tactics, and techniques for the operation and employment of all fighter aircraft weapons system.

THE TACTICAL AIR WARFARE CENTER (TAWC.) Based at Eglin Air Force Base, Fla., is our Tactical Air Warfare Center. This organization is a "catch-all" for all areas of tactical air power development and testing not delegated to the TFWC. Its scope of responsibility has recently been expanded to include airlift, reconnaissance, and tactical electronic warfare. The TFWC works closely with other Air Force Research and Development agencies and those of the sister services to develop new equipment and to effect equipment improvements on short-term notice. An example of this is the mobility equipment it has helped to develop and test that has made TAC's Bare Base Concept a proven reality.

THE SPECIAL OPERATIONS FORCE (SOF) is also located at Eglin Air Force Base. Here, we train, indoctrinate, administer, equip, and operate special operations forces in the air aspects of counter-guerrilla, counterinsurgency, and unconventional and psychological warfare. The SOF develops and tests concepts, tactics, techniques, doctrine, and equipment for special operations application and maintains combat-ready forces for instantaneous, world-wide deployment. These forces may be used independent of, or in conjunction with, other land, air, or naval units to include indigenous forces in overseas areas in support of the unified commands.

In addition to its tactical wings, training units, and specialized centers, TAC has a number of unique organizations reporting directly to its headquarters at Langley. Significant among these are:

THE 1ST AERIAL PORT GROUP. This organization provides command and supervision for five aerial port squadrons that are colocated with the five tactical airlift wings. These units are trained and equipped to operate tactical air terminals at advance airfields or landing zones and to prepare supplies and equipment for airdrop. They also provide Combat Control Teams that may be air-dropped ahead of an air assault operation to mark the drop zone and establish communications and navigation facilities.

THE 2ND AIRCRAFT DELIVERY GROUP. It responsibility is to deliver Air Force, Military Assistance Program, and Military Sales Program aircraft to any global location. [Support detachments are maintained along the main Atlantic and

"CDC and TAC must maintain close liaison and coordinate their efforts in areas of mutual interest"

Pacific air routes and, since 1959, the 2nd has delivered over 21,000 aircraft of 64 different types to airfields throughout the world.]

THE 1ST TACTICAL AEROMEDICAL GROUP. Aerial evacuation of the sick and wounded from the forward battle area is the responsibility of this organization. The system operates under the airlift task force commander in a theater of operations and its back-haul capability would be used to supplement regular combat resupply aircraft.

THE AIR GROUND OPERATIONS SCHOOL (AGOS) is located at Hurlburt Field, Fla., and provides training for both Air Force and Army personnel in approved concepts, doctrine, and procedures for coordinated air-ground (joint and combined) operations for the full spectrum of war. Special emphasis is placed on the Tactical Air Control System and the Army's air-ground system.

THE USAF DEMONSTRATION TEAM or "Thunderbirds" is TAC's most famous and publicized unit. Their mission is to "plan and present precision aerial maneuvers to exhibit airpower, the flexibilities of modern tactical aircraft, and the professional skills required to operate high performance aircraft." The current team is equipped with the F-4 Phantom. Since being formed in 1953, the Thunderbirds have performed before 86,000,000 people in over 1500 aerial demonstrations spanning all 50 states and more than 40 foreign countries.

The foregoing is but a brief description of the Air Forces' Tactical Air Command and its mission responsibilities. It becomes quite obvious that many of the functions discussed are in direct support of the Army's combat forces or are closely related thereto. As members of the Army and Air Force, it would seem that we have no choice but to work closely together in developing ideas for the conduct of future wars, for defining the systems and equipments needed to satisfy our mutual and unilateral needs, and for developing methods and procedures for insuring that we field the most viable and effective fighting force for the tax dollar spent.

While there is no Air Force counterpart to the Army's Combat Developments Command, there are many functions performed by CDC for the Army that coincide with the TAC responsibilities for Air Force planning and operations. Specifically, these involve the development of joint and unilateral concepts and doctrine; materiel needs; organizational structures; policies, objectives, and requirements for operational testing and evaluation; and actual conduct of the OT&E function. It follows that CDC and TAC must maintain close liaison and coordinate their programs and efforts both freely and openly in these areas of mutual interest.

Since 1964, TAC has maintained a Liaison Office in CDC Headquarters at Ft. Belvoir, Va. This office is the focal point and serves as a two-way pipeline for the exchange of information in the conceptual, doctrinal, materiel development, and OT&E areas for both commands.

As the TAC Representative to CDC for the past two years, I have found the job extremely interesting and challenging. I believe that one of the most important responsibilities of the Air Force is supporting the ground combat commander. Conversely, certain Army support to the Air Force is vital in any combat situation. To guarantee success on the future battlefield we must, today, exercise cooperation, trust, and respect and we must understand and appreciate the needs, capabilities, and limitations of each service. Only then can we hope to field a combat force limited solely by political, monetary, and technological considerations. I believe that progress is being made.

The F-111 is TAC's all-weather fighter. The swept-wing strike aircraft can fly at speeds in excess of 1850 MPH with wings tucked in and at high altitudes.

Maintaining A Vital Link Between the User and the Developer Are CDC'S LEAD SCOUTS: A GLOBAL LIAISON NETWORK

The Combat Developments Command (CDC) Liaison Officer deals with an elusive product. That product—the coordination of information and the assessment of user requirements—although intangible, is, at the same time, indispensable to CDC's combat development activities.

The CDC Liaison Field Office provides the vital link between CDC and the commodity commands of the Army's Materiel Command, between CDC and other services, and between CDC and the Army's field commands—the ultimate user of combat developments products.

Because of the need for the entire chorus to be singing from the same sheet of music, it is necessary to bring the members back periodically to the fountainhead.

Such an information session was held recently at CDC headquarters at Ft. Belvoir, Va. The agenda for the 30-plus LNOs from around the world spanned everything from Field Manual Production to the Integrated Battlefield Control System and included such topics as Light Observation Helicopter Analysis, Summary of Antitank Requirements, Threat and Technology Support of Combat Developments, the MASSTER program, and, of course, a briefing on the progress of CDC's command realignment program.

The bulk of the conference was, for obvious reasons, classified. However, it opened with an unclassified breakfast, hosted by Lieutenant General John Norton, CDC's Commanding General. Following the meal, LtGen. Norton asked each liaison officer to stand and provide a brief summary of the most important or exciting thing going on in his area.

This proved to be one of the highlights of the conference.

Colonel A. C. Thompson, representing CDC at the USAF Armament Laboratory, Eglin AFB, Fla., said the most exciting and interesting thing the Air Force had come up with that had applicability to the Army was its stockless rifle.

"It's a small, individual weapon," Col. Thompson reported, "which, I think, can very well take the place of the .45 and .38 caliber pistols we all love so well. As a weapon for a tank crewman, helicopter crewman, or other people who need an individual weapon, but have only limited room to carry it in, this stockless rifle has great promise."

The liaison officer to AMC's Electronics Command at Ft. Monmouth, N.J., Mr. Lloyd Snapp, reported that the two biggest projects there involved Tactical Satellite Communica-

The LNO's coordination of information and the assessment of user needs is indispensable to CDC.

tion and Tri-Service Tactical Communications.

Lieutenant Colonel Tony Arcuri said that the most important thing being done in the Alaskan Command is work with the familiar snowmobile in an effort to increase the ground mobility of Army forces in the Arctic.

By all odds, the LNO with the most varied tasks is Major W. R. White. Listed as liaison to the Strategic Communications Command (STRATCOM) at Ft. Huachuca, Ariz., Maj. White said that STRATCOM had recently added a combat developments division to its organization and this has great promise for CDC.

Major E. B. Rishel, coming from the Army's Missile Command at Redstone Arsenal, Ala., said the biggest actions going on there involved writing the Materiel Needs document for the SAM–D missile. Feedback from the Missile Command, Maj. Rishel said, indicates a desire for "a regeneration of the Army missile plan."

In Europe, CDC maintains a two-man liaison office with Headquarters, U.S. Army, Europe (USAREUR). Colonel J. J. McAloon, who heads the liaison mission to USAREUR, reported on his sprawling beat:

"The most important thing going on over there right now is the joint evaluation of the TOW Cobra. Of course, the transition to the H-Series TO&Es also is a big thing and is causing all sorts of heartburn."

The role of the attack helicopter in the British forces was highlighted by Colonel James Dalton, the senior standardization representative in London. He said the British recently made a decision regarding the helicopter in its antitank role.

"The British have decided that they are going to use button-on kits for their LOH and utility helicopters," Col. Dalton noted. "There's a thousand-to-one chance that the Army will get a TOW Cobra combination."

LtGen. Norton's remarks to the liaison officers at the conference apply not only to LNOs but to the entire command as well. The following is an excerpt from that speech:

Now I want to talk to you about the job of being a liaison officer and to give you my personal guidance.

TIP 1: BE A PROFESSIONAL "LEAD SCOUT"

You serve as the "lead scout" for CDC. What they think of *us*, out at your command, is to a great extent based on what they think of *you*. Obviously, as a liaison officer the first thing you have to do is sell yourself professionally to the people you are working with. It is your day-to-day dealing with the action officers that counts more than anything else. You have to make your own space. This is the real challenge. I want you to have the "lead scout" attitude —always alert and aware of what's going on around you, always looking for new trails and new possibilities.

TIP 2: BE RESPONSIVE

When you look at our motto, "Vision to Victory," I want you to see another "V" that we have to keep in there. That is the "V" for vigor. This vigor can express itself in a number of ways, but where you are personally concerned it should show up in *responsiveness*. The command *must* be responsive to the needs of the soldier, and that also means responsive to the needs of the organizations that support the soldier. We need good, timely information here so that we can react to these needs.

TIP 3: COMMUNICATE

Your main interest should be to become well aware of the priority requirements of the command where you are working. Our success in serving the soldier is based on knowing those requirements and the priorities involved. You are often the only source we have. The reverse is also true: you are often the only avenue that your counterparts out there have to get the information to CDC.

TIP 4: TAKE A STAND

You have to develop the ability to interpret what is being offered in the technical fields and to judge what value it is to us. I don't want you to just serve as a middleman—passing information in both directions without comment. I want you to be ready to put your professional reputation on the line. Tell us whether the idea is good or not so good. Do more than play the part of "CDC's roving reporter." Take a stand on what you see, what you pass on to us, and on CDC's products as well.

TIP 5: BE A UNIFYING FORCE

We have 5600 people at 30 separate elements in 20 different locations. Our interests are spread even wider than that, as you well know. This is a *disunifying* situation. You are one of the *unifying forces* that works opposite to this. I want you to get behind our ongoing efforts all the way. I need *fire-eaters* to be "Mr. CDC" at stations around the world. I need *team players* who are always ready to pick up the ball and run with it. I don't need anybody who is just drifting along with the tide.

TIP 6: HELP US CONLIFERATE

To speak frankly, we just have too much equipment. In a division we have one radio and one vehicle for every five men. We have some hard choices coming up, as we try to pare away that proliferation.

TIP 7: TELL THE CDC STORY

I want you to get out and beat the bushes and tell the Army story. I am very strong on this point—the need to keep the American public informed. The way to do this is to take every opportunity to *talk* about us and to *write* about us. For instance, I'd like to see you sending articles to the *Arrowhead*, which has had a face-lifting and is a great new edition of an old standby magazine.

I know you do a lot of briefing about the functions and goals of CDC as it is now. Keep it up. The better we can explain ourselves, the better we can combine our talents and strengths with the rest of the Army. I want you to know that I realize the vital importance of the liaison officer's role. In many key ways the success of our combat developments effort depends on your ability to perceive trends, to exchange data, and to assess the value of an action.

I have told you what I expect of you; and I want to indicate some areas where we will be giving you more support.

First, we are going to make sure that you get back at least once every six months, and possibly more often than that.

Second, we have established a liaison field office in the new organization. This will improve communication and administrative and operational control.

Third, we will continue to try to make sure that liaison officers have proper experience within CDC at the Group level or at this Headquarters.

Fourth, we will insure that the new operations center will send you summaries or copies of current "hot" material on an expedited basis.

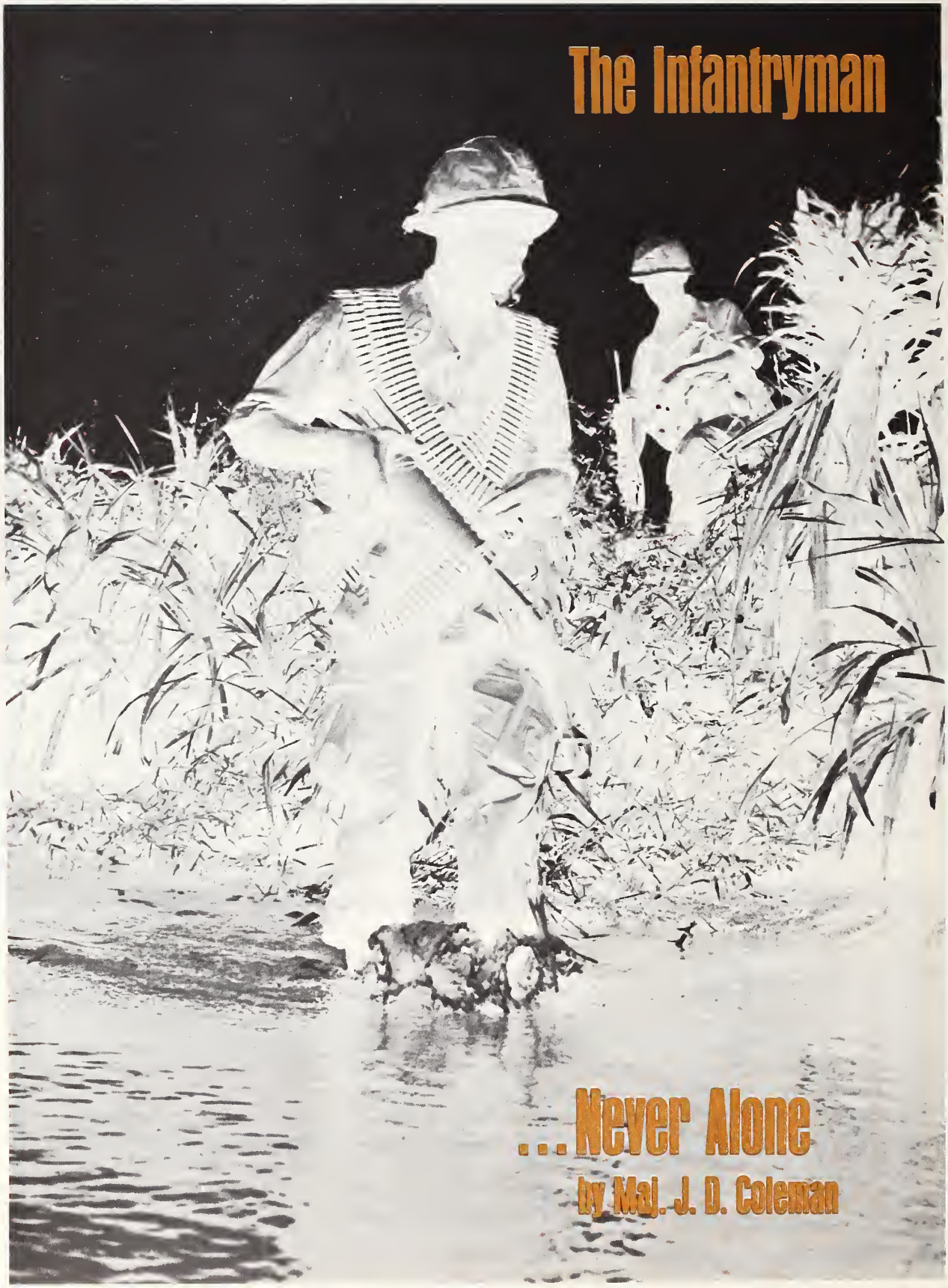
Lieutenant Colonel Hugh Morris, who works with AMC's Aviation Systems Command at St. Louis, Mo., said there were about four things of prime interest going on at present. These are the LOH new initiative program, the Cheyenne, the UTTAS, and the heavy lift helicopter."

And so it went, down through the list of liaison officers—each one listing what project he considered the most important or most exciting. Some, of course, either recently arrived at their post or enroute to the new job, were only able to stand and introduce themselves.

The work sessions were opened with formal remarks by LtGen. Norton (see box above) and a three-star "well-done" on CDC liaison activities to date.

LtGen. Norton stressed the importance of every LNO doing "more than carrying his own weight." He said that the image the liaison officer portrays is the image of CDC that will be retained by people all over the world.

The Infantryman



...Never Alone

by Maj. J. D. Coleman

FT. BENNING, Ga. . . . There may be talk in some quarters (every culture has its heretics) that the role of Infantry will be diminished—even eliminated—in the era of automation on the battlefield.

However, here at this traditional home of Infantry, and particularly at the agency charged with the responsibility of determining how the Queen of Battle will fight, be equipped, and be organized, such talk is greeted with derisive snorts. Infantrymen are unanimous in their conviction that any questions about the efficacy of the role of Infantry in the Army of the future are at least two centuries premature.

It is perhaps fitting and proper that the center that symbolizes mankind's oldest method of combat—the foot warrior—has perhaps the smoothest and most closely coordinated Center Team found in the Army.

The Team, consisting of USCONARC's Infantry School, the Army Materiel Command's Infantry Board, and CDC's Infantry Agency, has developed a slickly-meshed machine that encompasses almost everyone at Ft. Benning.

The Infantry Agency, commanded by Colonel Robert H. Siegrist, has made many contributions to the infantryman since its organization in 1962. It has played a key role in every important advance in Infantry combat and, looking at the studies, doctrinal programs, and materiel needs documents currently in the mill, its role will continue to be productive.

The agency has three major divisions—Studies, Doctrine and Organization, and Combat Material—and each is working on some highly important projects that promise to substantially improve the lot of the Infantryman.

The biggest project underway in the Studies Division is called DYNIN–II, an acronym for Dynamic Infantry. This is a tremendously important document because it really gets to the bone concerning the role of Infantry in an increasingly mechanized, automated world.

The study is taking some hard looks at infantry weapons, intelligence requirements, mobility, and maneuverability, and then seeks some answers to problems in these areas. DYNIN–II will be cast into the Center Team arena during October, following which more details will be made available.

Other projects in the Study Division either recently completed or late in the mill include the Small Arms Requirements Study (still underway) and the study designed to verify the requirement for a mid-range anti-tank weapon.

One of the oldest weapons known to man is the mortar. The 60mm mortar shown below is designed to take the place of the 81mm because it is lighter and easier to carry.

"The Infantry Center Team symbolizes mankind's oldest method of combat— the foot warrior"

Colonel Marcus W. Coyle, formerly head of the Studies Division, and now a special assistant to the Agency Commander for the purpose of honcho-ing the Infantry Development Plan through the Center Team, talked about the small arms requirements:

"The M–16, of course, will continue to be the standard infantry weapon during the 1970s. But, between now and 1980 we must develop a weapon that will meet the requirements for the infantryman of that period. It may be conventional—that is, use conventional ammunition or flachettes—or it may be exotic, using a new technology. The job of this agency is to determine how much it should weigh, its range, its size, and the type of ammunition and other features which may be required by tomorrow's Infantryman."

"We don't, of course, do this in a vacuum.", Col. Coyle added. "We are tied in very closely with the (Infantry) Board and the R&D (Research and Development) community."

The anti-tank weapons mix study, called ATMIX, demonstrated conclusively that the infantryman needed a good, medium-range anti-tank weapon. That weapon, slated to enter the active inventory next year, is the DRAGON.

Col. Siegrist called the ATMIX results highly significant for the infantryman. "It provides the man on the ground with a tremendously effective anti-tank weapon that will fill the gap between the long-range TOW and the short-range LAW."

The critical need to enhance the infantryman's effectiveness against the armor threat has led the agency into a program called LOHAR, which stands for Light Observation Helicopter in an Anti-armor Role.

This concept envisages employment of a system of anti-armor weapons, principally the TOW and DRAGON, throughout the battle area using the increased mobility provided by the LOH.

Major Anthony Bisantz, of the Evaluation Branch of the Doctrine and Organization Division, explained the concept this way:

"TOW and DRAGON teams would be maneuvered by LOH to ground positions to support the commander's concept of operation. These teams would possess a rapid response by deployment in a LOH and a high tank-killing effectiveness by reason of their weapons systems".

Major Bisantz said these teams would fight in coordination with LOH-mounted aerial anti-armor weapons, as well as with other ground forces. While less sophisticated than either the present or planned armor defeating helicopter, the LOHAR would be less expensive and may

The WASP, shown below, will be used by future infantrymen for reconnaissance and liaison. A man can be taught to fly this machine in six hours.

"The most exotic thing being worked on at the moment is the Individual Lift Device or WASP"

achieve acceptable effectiveness through high maneuverability, small size per unit, less cost, and therefore increased density in the battle area.

Lieutenant General John Norton, Commanding General of CDC, Major General Orwin Talbott, the Commandant of the Infantry School, and Brigadier General A.G. Hume, Commander of CDC's Combat Systems Group, discussed the merit of the concept last April. Following this discussion, the Infantry Agency prepared a concept paper and evaluation program, the Infantry Center Commandant made a presentation at the Chief of Staff's Center Team Commander's Forum, and the Infantry Center Team forwarded a position favoring development of the LOHAR concept.

Field tests of the concept were conducted during August by the 82d Airborne Division at Ft. Bragg, N.C., and the final evaluation is due at CDC headquarters later this month.

The key to the concept is the ready availability of the helicopters and, according to Col. Coyle, this means there is a requirement to get the birds assigned to the infantry brigade or battalion. That is the current position of the agency, but whether it will stand the test of inter-agency staffing remains to be seen.

Col. Siegrist sees the presence of the LOH at battalion level as having other benefits as well.

In the freewheeling discussion between senior staff members of the Infantry Agency and Brigadier General Raphael Eitan (right), Chief of Paratroopers and Infantry, Israeli Defense Forces, there was talk of many things, most of which would be of interest to the CDC community. Here are some pertinent comments by General Eitan:

On the matter of developing a new assault rifle . . .

"We have a new 5.56mm rifle that is simple, reliable, and effective. The rifle has only 107 parts, as compared to about 240 parts for our old rifle and your M–16. It weighs about 4 kilos (8.8 pounds) loaded, but our main consideration was not weight, but reliability.

"With the maintenance problems in the desert, our soldiers must be confident that when they pull the trigger something will happen. It is a small thing to sacrifice some weight reduction to get that."

On light anti-tank weapons . . .

"We like the four-round LAW. This will enable our soldiers to fire a spotting round, then a ripple of three killing rounds in a shorter time than if he had to pick up four individual LAWs. The longer exposure time demands more courage from the soldier than we should demand. Again, weight is less important than the soldier's confidence in a weapon that is effective and, at the same time, reduces his vulnerability."

On the long-range anti-tank weapon . . .

"During the Six-Day War we had excellent results with the 106mm Recoilless Rifle. It was extremely effective for us during the Six-Day War. The noise and confusion of battle keeps the weapon from being detected. My battalion did not lose a single 106 during the war."

On airmobile operations against a sophisticated air defense array . . .

"Deception is the best solution—night operations offer the best chance of success—daylight operations require air superiority—I think a radar-detection device for each helicopter would be very important to successful airmobile operations."

"It will, of course, aid in giving the infantryman increased battlefield mobility, but its greatest benefit will be in helping to accomplish the traditional infantry mission of finding the enemy."

The Evaluation branch of the agency works very closely with the Infantry Board on these actions. In fact, Maj. Bisantz noted, his branch and its counterpart on the Board have exchanged action officers on many projects.

Since LOHAR is a Center Team concept now, it also follows that the Infantry School would have some input. "That's right," Major Bisantz said. "The Infantry School has sent over two officers to work with us on the field evaluation."

The Infantry Agency's ties with the school are particularly tight. The agency regularly presents a two-hour pitch to the Advance Classes and gives other CDC-oriented briefings on request. In addition, the agency helps the student officers with their assigned staff studies.

"There is hardly a day that passes when a student isn't here at the agency seeking source materiel for his study," Col. Coyle said. The agency also provides the expertise in evaluating the study results.

A new program is being cranked up which allows a group of students to form a study group, select a subject, and then wrestle it through to some conclusions. Again, the agency will get the results for evaluation.

Another aspect of the cooperation between members of the Center Team is the handling of official visitors. Because the agency deals with the future of Infantry, almost every itinerary prepared by the Center calls for a stop at the agency. One of the latest visitors was Brigadier General Raphael Eitan, Chief of Paratroopers and Infantry of the Israeli Army Defense Forces. Scheduled as a briefing for General Eitan, the session quickly developed into a mutual discussion of problems common to infantrymen world-wide (see box).

The third division of the agency is Combat Materiel, headed by Colonel John L. Daniels. This division, of necessity, is hardware-oriented, but the span of its current hot projects indicates the total concern for the welfare of the infantryman.

The most exotic thing being worked on at the moment is the Individual Lift Device or WASP, as it's called at the agency. The WASP (Williams Aerial System Platform) is designed to fill the gap between the LOH and ground mobility systems. Action officers at the agency are tremendously excited about the potential of the WASP.

Mr. Richard E. Gile, a retired infantryman and aviator who is the project action officer, said the machine is a follow-on to the jet belt, except that it is much better and simpler to operate.

"I believe that an average high school graduate can be taught to fly this machine in six hours," Mr. Dyer said. "And, in 30–40 hours, he can become highly proficient."

The WASP, obviously, is not for everyone in the rifle company. Agency planners envision perhaps one per company and see its uses primarily in the realm of reconnaissance and liaison. They pointed out that a company commander could make a recon of his company positions in less than one-third the time that it now takes him on foot.

The machine can be configured for one or two passengers, but the agency prefers a capacity of two. "We can always use the extra lift capability to move light weight weapons systems or haul cargo, if necessary," Mr. Dyer said.

Slipping from something new to something

Soldiers dangle like ants from a giant erector set (above) as they undergo airborne training at a jump tower at Ft. Benning.

old in the Materiel Division is as easy as reciting the old bridal poem. Moving along the developmental trail side-by-side with the exotic WASP is the company lightweight mortar. This, essentially, is a new look at an old friend of the infantryman—the 60mm mortar.

Infantry operations in Vietnam, particularly in the airmobile units, found the standard 81mm infantry mortar too heavy for extensive hand-carry. Moreover, the weight of the rounds precluded carrying enough ammunition to provide any kind of effective fire support for the units in contact. As a result, most units either did not carry any mortar or toted one tube with the remainder of the weapons platoon hauling ammo.

The lightweight company mortar provides an answer to the weight problem and a product-improved round corrects the deficiencies that originally led to abandonment of the old 60mm mortar—lack of lethal punch in the impact area.

With the new mortar weighing about 40 pounds, as compared to 94-pound load of the 81mm mortar, and the new round weighing about one-half the 9.2 pounds of the standard high explosive 81 round, it doesn't take a mathematician to figure that this development promises to take much of the "grunt" out of the infantryman.

Improving the combat capabilities of the infantryman really is the sum and substance of the day-to-day activities of the agency. One of the most visible manifestations of this concern for the individual soldier is the Army Sounding Board, a function of the Materiel Division. Created in February, 1970, as a means to obtain ideas from the field—with the field defined as any soldier anywhere in the world—the Board has received nearly 1,000 separate ideas, suggestions, and recommendations for improving the clothing and equipment of the individual soldier.

In answering questions posed by a New York *Times* interviewer recently, Col. Siegrist said that the most important materiel items affecting the infantryman in the 1970s are: DRAGON, the MICV (Mechanized Infantry Combat Vehicle), the lightweight Company Mortar, and the one-man machinegun.

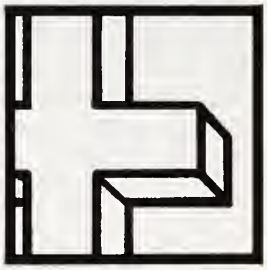
The latter is a proposal for a 5.56mm, light weight weapon that can be carried by a rifle squad member. This, then, will make the 7.62mm M–60 machinegun the medium, company machinegun.

Col. Siegrist was emphatic on the need for a continued airborne capability in the Army. He said his personal position is that every infantry division needed some sort of airborne capability and he favored a good, solid study on the airborne requirements for the future.

"Looking further down the road," Col. Siegrist said, "I see a need for a good position locator—a lightweight device that can pinpoint an infantryman's location down to 20 meters on the ground.

"Hand in hand with this development," he said, "is the requirement for lightweight laser rangefinder. The artillery already has a heavier, more complicated device, but we need a rangefinder that weighs in at less than seven pounds."

But whether it is working up a proposal for a futuristic aerial personnel transporter, or grinding out changes to Infantry Tables of Organization, one thing is crystal clear at the Infantry Agency. There is a future for the Queen of Battle, and the Infantry Agency is doing its part to insure that the future remains bright and full of promise.



For God and Country

In the eleventh Chapter of Genesis we read the story of the building of the tower of Babel. Men said to one another: "Come, let us make brick and bake them with fire . . . Come let us make a city and a tower, the top whereof may reach to heaven; and let us make our name famous."

Note the resemblance between these thousand-year-old arrogant words and the speech of numerous leaders. How many today beat their breasts proudly because our times have enriched mankind during a few decades with more technical inventions than were devised in all the past thousands of years put together. This is true, but it is also true that we still have no peace, no understanding between peoples, no security, and no fullness of life.

The tower of Babel was never completed. Why? Because Almighty God confused the tongues of the men who arrogantly defied Him, so that they were no longer able to understand one another.

Perhaps this is the trouble with us, too. Men, nations and races do not understand one another. At the tower of Babel men who turned away from God did not understand one another because of the confusion in their languages. The men of today who have turned away from God do not understand one another because of their unbridled selfishness, their hunger for power, fame and pleasure; because of the strife of clashing interests, and because of class and race hatreds. We have technology, we have industry and commercialism on a vast scale, and in spite of these we have the confusion of Babel.

Technology constructed newer, faster, and more powerful machines and gave them into man's hands. Chemistry and physics harness powerful natural forces and give these into man's hands. But who is this man into whose hands such powerful forces are entrusted? Someone tossed hither and thither by unbridled instincts!

Surely we are proceeding unwisely in giving more dangerous forces into man's hands, if at the same time we neglect to strengthen him spiritually to the same degree. If someone places a more powerful motor in an automobile, he should at the same time provide it with stronger brakes. But we are increasing man's motor power, and neglecting to increase the fear of God—a restraining force, the sense of responsibility, of honesty, of duty, and love of God in man's soul.

We have been building a city of Babel on a sandy foundation, a house of cards that must ultimately collapse. The Good Book says: "Unless the Lord build the house, they labor in vain who build it. Unless the Lord guard the city, in vain does the guard keep vigil." (Ps. 127)

The founders of our country learned that lesson from history a long time ago. It was their intention to build a nation on a solid foundation with the help of the Almighty. The Declaration of Independence includes four specific references to the dependence of our nation on Almighty God. They pictured the American seal with the "Eye of God" on every dollar bill. And they made our National Motto "In God We Trust." Let us not abandon our great Moral Heritage. America will remain great if you and I keep the torch of faith, handed down by our forefathers, burning.

Chaplain (Col.) Joseph S. Chmielewski
CDC Staff Chaplain

Spot Reports

CDCEC Promotion

FT. ORD, Calif. . . . In recent ceremonies at the Combat Developments Command Experimentation Command (CDCEC), Colonel Allen Ross Champlin was promoted to that rank by his commanding general, Brigadier General Ray Ochs.

The new colonel is also in a new position—that of Chief, CDCEC's Project Team II, assumed June 14 of this year. He was previously serving CDCEC as Experimentation Control Officer of its Project Team IV.

Col. Champlin has been with CDCEC since July 1968, first serving as Deputy Chief of Project Team II.

Experiment Held

FT. ORD, Calif. . . . The thickly wooded, rugged hills of the Combat Developments Command Experimentation Command's (CDCEC) Hunter Liggett Military Reservation (HLMR) was the site of a recent experiment conducted to validate a computer mathematical model of small infantry actions.

The test, designed from data gathered in Vietnam and Hawaii, was conducted by CDCEC's Project Team II, headed by Colonel Worthington Mahone and the Vertex Corporation at the request of the Advanced Research Projects Agency (ARPA) of the Department of Defense.

The Small Independent Action Force (SIAF) program commenced during the fall, 1968. Combat data was collected and field testing programs, mathematical modeling and prototype equipment were developed in preparation for the verification test (see May 1971 *Arrowhead*).

Results of the experiment, which also evaluated the effectiveness of various personnel and equipment mixes and different operational techniques, will be compared directly with the SIAF Mathematical Model.

Hot Rod

FT. SILL, Okla. . . . Keith Collins, son of Major and Mrs. David G. Collins, Combat Developments Command Field Artillery Agency, was the runner-up in Class B Competition of the Annual Lawton-Ft. Sill Soap Box Derby held on July 10, 1971 here.

The racer driven by Keith was sponsored by the CDC Field Artillery Agency and received the award for being the "Best Designed Racer" in 1971.

The Sergeant Major's Association here also presented Keith with the "Sergeant Major's Association Trophy" for Best Performing Ft. Sill Contestant.

Keith is shown pictured with his father, Major Collins, and the "Vision to Victory" Racer.

Re-Up Trophy Won

FT. LEAVENWORTH, Kan. . . . For the second year in a row the Combat Developments Command Institute of Combined Arms and Support (ICAS) has won the Ft. Leavenworth Commanding General's Reenlistment trophy.

The trophy is awarded annually to the unit obtaining the highest reenlistment rate in accordance with its reenlistment goal for the year.

ICAS' reenlistment NCO, SFC Maurice Jackson, reenlisted six men in fiscal year 1971, or 150 percent of his yearly objective. He failed to reenlist only two of the eight individuals counseled for reenlistment.

SFC Jackson's efforts also won ICAS the reenlistment plaque for the first quarter of FY 71 when he reenlisted three men or 300 percent of his objective.

Colonel Richard M. Winfield Jr., ICAS Chief of Staff, accepted the awards for ICAS. A Certificate of

Excellence was also awarded to SFC Jackson for his achievements.

The reenlistment award for the second quarter of FY 71 was won by the Combat Developments Command Combat Systems Group. SFC Ira E. Goosey is the career counsellor for COMS Group.

Workshop Conducted

FT. BENJAMIN HARRISON, Ind. . . . The times and people are indeed changing. To help meet these changes, the Combat Developments Command Personnel and Administrative Services Agency (CDCPASA), under the command of Colonel Gerald L. Overstreet, conducted a three-day workshop on the problems of converting young men entering the Army in the 1970s into effective combat soldiers.

Entitled the Personnel Offensive, the workshop was under the direction of Colonel Lester J. Evans, CDCPASA. The 58 conferees came from headquarters, schools and units primarily concerned with leadership and training techniques. Ranging in grade from SP4 to Colonel, the conferees were selected to provide the widest possible range of views.

The thoughts and findings developed during the workshop will be integrated into the final recommendations of the Personnel Offensive, a major part of the DA priority study —The American Soldier in the 70's.

The Personnel Offensive is designed and conducted with the thought that while the Army has problems, the Army also has problem solvers. If times and people are changing, the Army can meet the challenge.

New Uniform

FT. BELVOIR, Va. . . . Are you a little tired of feeling like you're in a cast every time you put on a fresh set of starched khakies?

If so, then the new press-free summer uniform developed by Nadick Laboratories in Massachusetts will interest you. On 1 July 1972, the uniform will be available as a standard item of issue in the clothing sales store.

The uniform is being manufactured by Creighton Inc., one of the major shirt companies in the United States. The uniform is a blend of 65% cotton and 35% rayon. It is machine washable, requires little or no ironing, and has a projected cost well under that of the present press free khakies now available at military stores.

On a visit to the Nadick Lab, Combat Developments Command's Command Sergeant Major Lawrence Kennedy observed one uniform that had been washed every day for several months. "Even after several months of daily washing, the uniform still held its neat appearance and proved itself to be a most durable material. I was greatly impressed."

The uniform will be lighter than the present Army issue khaki, which should make it extremely popular during the hot summer months.

Change of Command

FT. ORD, Calif. . . . The Experimentation Battalion, Combat Developments Command Experimentation Command (CDCEC), held a change of command ceremony recently.

Lieutenant Colonel Robert W. Crittenden, the new CO, waits at right to receive the unit colors.

Receiving the battalion colors from the unit's executive officer, Major Wendel L. Long, is the Experimentation Brigade Commander, Colonel Arvid P. Croonquist.

Lieutenant Colonel Thomas Fowler, enroute to his next assignment with Project MASSTER at Ft. Hood, Tex., was the former commanding officer of the battalion.

LtCol. Crittenden, a Ranger, parachutist, and Professor of Military History, came to CDCEC from George Washington University, Washington, D.C., where he was taking advance study in management and engineering.

Agency Celebrates

FT. McCLELLAN, Ala. . . . The Combat Developments Command's Chemical - Biological - Agency (CDCCBR) celebrated its ninth anniversary July 1 .

At a coffee get-together the commander, Colonel Kenneth L. Stahl, spoke to employees and guests about the mission of the agency and also thanked many of the employees for nine years of dedicated service.

Employees present for the anniversary who began work when it was formed here nine years ago included Thomas D. Cunningham, Mrs. Marie D. Pace, Mrs. Frances Hickman, Mrs. Carrie Lee Haynes, Mrs. Inez T. Paschal, Paul Whitten, Dale Galloway, Doug Wilson, John L. Trainer, Luke H. West and Joe Gaines.

The agency conducts studies on future Army needs in the chemical, biological and radiological fields. This work is accomplished by specialists assigned in four divisions—Scientific and Technical Staff, Program and Administration, Doctrine and Organization, and Material Evaluation.

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Major General Schweiter Leaves For Vietnam

FT. BELVOIR, Va. . . . "This has been one of my most memorable assignments. I have never seen or been with a command that works together as a team as well as Combat Developments Command (CDC)."

With these words Major General Leo H. Schweiter said farewell to the staff of CDC at an award ceremony where he was presented the Legion of Merit (2nd Oak Leaf Cluster) by Lieutenant General John Norton, Commanding General of CDC.

MajGen. Schweiter has been the Deputy Commanding General of CDC for the past two and one-half years.

MajGen. Schweiter, a veteran of World War II, the Korean War, and the Vietnam Conflict, is returning to Vietnam to serve as Chief of Staff, United States Army, Vietnam.

Having held many diverse combat and staff assignments over the past 30 years, MajGen. Schweiter wears the Distinguished Service Medal, the Silver Star with Oak Leaf Cluster, the Distinguished Flying Cross, the Bronze Star with three Oak Leaf Clusters, the Air Medal with "V" Device and 24 Oak Leaf Clusters, the Army Commendation Medal, and

the Purple Heart with Oak Leaf Cluster. In World War II he made two combat parachute jumps behind enemy lines.

MajGen. Schweiter has served with the 101st Airborne Division and the 82nd Airborne Division. He was Assistant Chief of Staff, G3, with the 101st, and a member of the Joint Airborne Troop Board. While in the 82nd Airborne Division he commanded an Airborne Infantry Battalion and the Provisional Reconnaissance Troop, Sky Cavalry, the first air cavalry in the United States Army.

MajGen. Schweiter has been a staff officer in the G3 Division, Headquarters USAREUR, and Chief of Staff of the 8th Infantry Division. He has had duties as G2 of XVIII Airborne Corps and the Strategic Army Corps, Commanding Officer of the 2nd Airborne Battle Group 504th Infantry and the first Commanding Officer of the newly activated 5th Special Forces Group (Airborne). He has also served in the Office of the Special Assistant for Counterinsurgency and Special Activities, Officer of the Joint Chiefs of Staff, and Director of Special Operations, Office of the Deputy Chief of Staff for Military Operations, Department of the Army. Following this duty he was Assistant Division Commander, 101st Airborne Division, Ft. Campbell, Ky.

MajGen. Schweiter's assignment prior to his duty with CDC was in the Republic of South Vietnam. There he served as Commanding General, 173rd Airborne Division (Separate), and as Chief of Staff, XXIV Corps.

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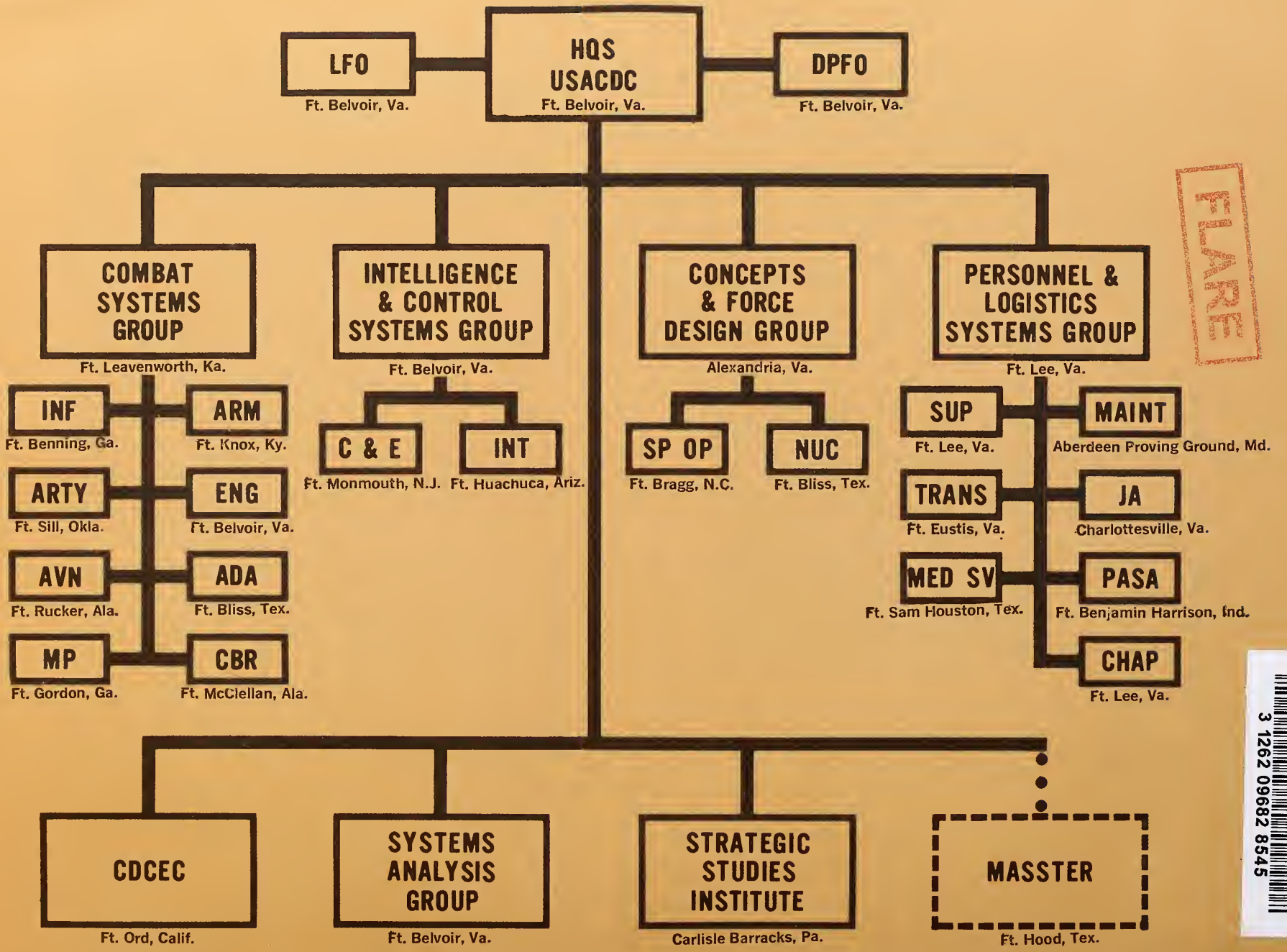

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